think that Brock and Gurekas would ultimately agree. How is their comment that "medical decisions should discriminate on the basis of a person's characteristics that affect the likely success or failure of a treatment, not on self-interest, intolerance or frivolity" different from what I said? Ethically appropriate medical decision making involves applying medical criteria, not personal criteria or criteria that have nothing per se to do with the medically relevant facts of the situation. Medical decisions differ from situation to situation, as expected. Anything else would ignore the fact that cases differ, which would be bad medicine as well as bad ethics.

I agree with Brock and Gurekas that medical decision making involves more than a Yes or No answer; it involves "fuzzy thinking" (their term). However, such thinking is not subjective: it is multivalued. Multivalued logics — and there is a whole variety of them — assume objective measures to assign different strengths to the options. Again, this does not contradict what I said.

Eike-Henner W. Kluge, PhD
Professor
Department of Philosophy
University of Victoria
Victoria, BC

Physicians and euthanasia

In the article "Canadian physicians and euthanasia: 5. Policy options" (*Can Med Assoc J* 1993; 148: 2129–2133) Dr. Douglas M. Sawyer and his colleagues report on a study from the Human Life Research Institute indicating that "many physicians feel that physician-assisted death is justified in at least some circumstances."[1]

Actually most of the physicians involved in the study opposed active euthanasia. The data were obtained from questionnaires completed anonymously by 98 physicians at the International Terminal Care Conference, held in Montreal, in 1988.[2] Seventy-five percent of the physicians opposed the administration of lethal injections at a patient's request, 70% opposed the legalization of euthanasia, and 88% opposed the performance of euthanasia at relatives' request. Eighty-five percent of the physicians, with varying experience in palliative care, stated that good pain control is achieved in 90% of their patients.

Of 212 members of the Academy of Hospice Physicians (North America), who were surveyed in 1990, 85% rejected active mercy killing; 13% were undecided.[3] The academy officially stated its opposition to these procedures,[4] as did the US National Hospice Association.[3]

Although these results represent few physicians they are important in euthanasia discussions because most of the physicians' practices involve dying patients. Prominent palliative care physicians Drs. John Scott[5] and Elizabeth Latimer[6] have reported that there are few requests for active mercy killing, believing these to be a cry for help, not death.

According to reports from the CMA convention held in September 1993 Canadian doctors seem concerned about safeguards if euthanasia were legalized.[7] In the Netherlands, where widespread euthanasia is tolerated, safeguards are not working, as the following conclusions from the Remmelink report[8] reveal.

- Official studies have focused on active euthanasia (2300 cases per year), but decisions to withdraw or withhold lifesaving treatment *without the patient's request* are made "at least 25 000 times a year," resulting in 19% of all deaths.[8] The Remmelink report revealed that when morphine was administered "in such a way that it nearly certainly shortened life," in 27% of cases "the decision was not discussed with the fully competent patient."[9] In nursing homes and hospitals 86% of specialists' decisions not to resuscitate are made without the knowledge of the patients, even competent patients.[10]
- Physicians are improperly reporting euthanasia. Nearly 20% of general practitioners don't consult colleagues as required, and 41% don't believe in a written report.[11] Most physicians issue death certificates stating that the physician-assisted death, particularly if carried out without the patient's request, was due to natural causes.[12]
- Grounds for euthanasia now include physical or mental suffering in the physician's judgement.

Palliative care and pain control education are poorly developed in the Netherlands; this is presumably a large factor in the increased incidence of euthanasia there.

Doctors and nurses in the Netherlands have told me that some senior citizens carry wallet cards saying "Do not kill me" and avoid hospitals that frequently practise euthanasia.

Given the experience in the Netherlands and the enormous social and economic pressures on the Canadian health care system any attempt to condone widespread euthanasia appears dangerous. Rather, we should intensify efforts to educate health care professionals and the public about the striking advances in palliative care and pain control.

L. Le Baron de Veber, MD, FRCPC
London, Ont.

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Compensating occupational diseases

Dr. David C.F. Muir, in his article "Compensating occupational diseases: a medical and legal dilemma" (*Can Med Assoc J* 1993; 148: 1903–1905), and Dr. Allen Kraut, in his letter (*Can Med Assoc J* 1993; 149: 1230–1231), have written about basing workers' compensation on a proportioning of the causes of disease between occupational and other factors on the basis of the results of epidemiologic studies.

Such an idea is attractive and does form the basis of compensation for alleged radiation-induced cancers in the United States. However, this concept is fundamentally flawed because we do not currently possess the knowledge to make the calculations properly.

Muir writes:

> The attribution of proportional cause would have to be based on the application of epidemiologic data to individual cases. It is a well-recognized law of statistics that group estimates cannot be applied to individuals from that group unless factors such as duration of exposure that are specific to the individual are allowed for. However, once these factors are taken into account it is generally possible to attribute cause on a fairly broad basis.

This view is too simplistic because it ignores the important, unmeasureable factor *individual susceptibility*.

It is well known that among a group of people working side by side in a workplace that contains carcinogenic substances, cancer may develop in one but not in others. Why is this? In our ignorance we attribute this to chance and compute disease probabilities for the group as a whole.

Molecular biologists have begun to recognize a genetic basis for many diseases, which confers a higher-than-average risk on certain people. For example, carriers of the ataxia-telangiectasia gene have a higher-than-average risk for radiation-induced cancers.[1] Risk estimates of radiation exposure, derived from epidemiologic studies of cancer in populations containing unknown numbers of individuals who are carriers of this gene, provide misleading information about the risk for individuals in the population under study or in other populations. For example, applying the risk estimates for radiation exposure from the data on atomic bomb survivors to a Canadian worker in a nuclear generating station who, unknown to himself and others, is a carrier of the ataxia-telangiectasia gene will not provide a correct proportioning of causes, because this worker's risk is presumably higher than that of the average atomic bomb survivor who received a similar radiation dose.

In summary, we are all "black boxes" containing individual idiosyncrasies in our genes, and for the most part these individual susceptibilities or defences cannot yet be detected. In the case of individual workers, attempts to proportion causes for most diseases are doomed to failure. Regrettably, the proposal to proportion causes is no improvement over the systems currently in place.

Murray M. Finkelstein, PhD, MD, CM
Medical consultant
Health and Safety Studies Unit
Ontario Ministry of Labour
Toronto, Ont.

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[Dr. Muir responds:]

Dr. Finkelstein fails to address the central issue that makes the current system of occupational compensation unfair. Exposure to toxic substances represents a continuum of hazards to workers. The system arbitrarily and unfairly divides the population in two: those who receive full compensation (even though a large part of their disease is due to nonoccupational factors) and those who receive no compensation (even though some of their disease is occupationally related). Perhaps Finkelstein would like to be referred to one of my patients who received no compensation for obstructive airways disease so that he can explain just how fair the current system is. He might also care to explain to employers why they should compensate for nonoccupational disabilities.

Individual susceptibility is currently unmeasurable and unrecognizable; its consideration does not contribute to the debate except to obscure the issue. We generally prescribe the same dose of an antibiotic to all patients, even though we know there is wide variation in individual rates of absorption and metabolism.

Canadian thinking increasingly supports the concept of equality of treatment to one and all. Compensation should do likewise. We should either have universal disability coverage or proportional assignment of cause.

David C.F. Muir, MD
Director
Occupational Health Program
McMaster University Health Sciences Centre
Hamilton, Ont.

Unrecognized adverse drug reactions

Dr. David Rapoport's letter (*Can Med Assoc J* 1993; 149: 1233) concerning the recognition of drugs as a likely cause of unusual symptoms that do not readily fit into diagnostic categories is worth heeding.

For prescribing information see page 270 →